Improving the Emergency Department's Processes of Coding and

Billing at Brooke Army Medical Center

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14. ABSTRACT

The Army Medical Departments (AMEDD) method by which it obtains reimbursement for patient care is undergoing a major transformation. Beginning in October 2002, outpatient itemized billing was mandated for use in the AMEDD. This system shifted the process of billing for outpatient services from an allinclusive rate to one based on the actual care provided. This has placed focus on medical coding, which is transposing documented care into an alphanumeric format that is acceptable for billing purposes. As the primary portal into Brooke Army Medical Center, the emergency department (ED) is being forced to streamline its processes and operate on a more cost effective and efficient basis. This is a challenge as they are the only level one trauma center in the United States Army and treat a high volume of high acuity, diverse patients. The ED sees over 56,500 patients annually, five-percent of which are non-beneficiaries, and accounts for over 60 percent of all hospital admissions. The continuous inability to comprehensively bill for services has resulted in the ED being a major cost center for the hospital. In 2002 the ED provided over $1.25 million of billable care of which only $324,000 was actually billed. This was due to poor data entry, documentation, and coding. The ED is seeking methods to control expenditures, improve documentation, and increase coding compliance and subsequent billing. Medical treatment must be documented and efficiently coded to be billed and reimbursed. Medical coding is now the lynchpin for reimbursement.

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Abstract

The Army Medical Department's (AMEDD) method by which it obtains reimbursement for patient care is undergoing a major transformation. Beginning in October 2002, outpatient itemized billing was mandated for use in the AMEDD. This system shifted the process of billing for outpatient services from an all-inclusive rate to one based on the actual care provided. This has placed focus on medical coding, which is transposing documented care into an alphanumeric format that is acceptable for billing purposes.

As the primary portal into Brooke Army Medical Center, the emergency department (ED) is being forced to streamline its processes and operate on a more cost effective and efficient basis. This is a challenge as they are the only level one trauma center in the United States Army and treat a high volume of high acuity, diverse patients. The ED sees over 56,500 patients annually, five-percent of which are non-beneficiaries, and accounts for over 60 percent of all hospital admissions. The continuous inability to comprehensively bill for services has resulted in the ED being a major cost center for the hospital.

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Introduction

Brooke Army Medical Center (BAMC) is one of only six medical centers in the United States Army, and the only one holding a level one trauma designation. BAMC is also unique by serving not only their beneficiary population but also the local civilian community through their trauma service. They are one of three trauma centers in the City of San Antonio that serve the 1.9 million people in the city and the 22 counties / 26,770 square miles that are designated as Texas Trauma Region P. With this unique mission the Emergency Department (ED), through their emergency room (ER) and urgent care clinic (UCC), has become the main portal to care at BAMC. In fiscal year (FY) 2002 the ED treated 56,530 patients; 2,693 were non-beneficiaries. From this, 5,500 were admitted for inpatient care; 855 of these non-beneficiaries. Included in these patient figures are the 1,579 trauma cases that presented to the ED (Department of Health Plan Management, 2002).

The ED and the large diverse population it serves are responsible for over 60 percent of the FY02 8,899 hospital admissions. This patient load is the foundation for BAMC's education mission that entails extensive Graduate Medical Education (GME) and Advanced Individual Training (AIT) programs. Over 600 GME students and 6500 AIT soldiers train on an annual basis at BAMC. This openness to all patients and the unique training atmosphere comes at a steep cost.

The core budget at BAMC is constructed to cover all beneficiary care while all non-beneficiary care must be funded through other revenue sources. The total expense of caring for the non-beneficiaries at BAMC in FY02 was over $37 million. The primary entry point for this care was through the ED. From 1995 though 2000 this expense was mitigated, to some extent, as the City of San Antonio provided $1.5 million to the United States Army Medical Command (MEDCOM) as a partial payment for treating civilians in BAMC (MOA, 1999). These payments ceased in 2001 due to city budget constraints. With this loss of revenue, the hospital is being forced to rely heavily on other reimbursement mechanisms. One is third party collection (TPC) that allows BAMC to bill and collect from beneficiaries' private insurance for care received here. A second is Medical Services Account (MSA). MSA obtains reimbursement for care provided to non-beneficiaries by billing and collecting from patients directly or their insurance companies to include Medicare and Medicaid, and the collection of workmen's compensation. In addition cash collections from the dining facility are credited towards MSA. TPC and MSA recaptured $6.5 and $8.1 million respectively for BAMC in FY02. Presently any non-beneficiary care billable under MSA that is not collected is made up by MEDCOM in an annual end of year payment. This amounted to $28.9 million in FY01 (Brooke Army Medical Resource Management Division, 2002). BAMC is now relying on TPC, MSA, and MEDCOM reimbursement for almost 25 percent of its annual budget. This places a tremendous risk and burden on the hospital to ensure documentation, billing, and

reimbursements are done correctly and efficiently in order to remain financially solvent.

The Department of Defense (DoD) has historically billed according to Medical Expense and Performance Reporting System (MEPRS) codes. This is a flat rate charge for outpatient services regardless of treatment. For example, this rate only allows DoD to bill a civilian or beneficiary $278 for an ER visit and $160 for an UCC visit in 2002 regardless of actual treatment. The true cost of a visit has been invisible but the standard billing rate is about to change.

Conditions which prompted the study

The method in which DoD is able to obtain reimbursement for patient care is undergoing a major transformation. The FY00 National Defense Authorization Act (NDAA) granted the DoD the authority to begin the change in charging from "reasonable costs" to "reasonable charges" beginning 1 October 2002. This act shifted the focus from all-inclusive rates to itemized billing for outpatient services (Uniform Business Office, 2001). This is bringing DoD on line with what civilian medical entities and the Veterans Affairs (VA) Hospitals have been doing for many years.

To conduct itemized billing all documented provider encounters must be transposed into a coded format that is acceptable for reimbursement from the Center for Medicare & Medicaid Services (CMS) and private insurance companies. This is known as medical coding, which is loosely defined as translating descriptions of medical diagnoses and procedures into codes that

record health care data. The basis for all billing is the input, correctness, clarity, legality, and format of data and subsequent codes assigned. The key person in itemized billing is the medical coder that transposes the medical notes into a numerical billable format. If medical procedures are not coded correctly they cannot be billed. DoD is presently transforming to meet all CMS and Ambulatory Data Module (ADM) Coding Guidelines. This shift in business practice is placing an increased burden not just on coders but also on providers and support staff that enter data or scribe treatment regiments onto medical charts. The volume and acuity of patients entering the ED, along with their being the central entry point for civilians has place additional pressure on the ED personnel to document accurately.

Itemized billing is now a reality. It has brought command focus to the processes and efficiency of the Emergency Department due to the high number of visits, the perceived high cost per visit, and the lack of reimbursement for this care. Under the old MEPRS billing system, the ED had the ability to bill approximately $1.25 million of which approximately $324,000 was billed and only $52,000 collected due to poor data entry, documentation, and coding (Table 1). A recent audit of ED records by the internal compliance team showed less than a 50 percent coding compliance rate, that is the right medical procedure with the correct corresponding code (Coding Compliance Office, 2002). The standard to be billable is 90 percent compliance. Under the itemized billing system there is an

unknown amount of costs to be recaptured through accurate documentation, coding, and billing since this is an entirely new process in the DoD.

Table 1

Comparison of Potential Reimbursement under Itemized Billing and MEPRS (beneficiaries are those under 65 and non-AD)

		Under Itemized Billing		Under MEPRS in FY02	
	Total Visits	Avg cost/visit	Total Billable	Cost Per Visit	Total Billable
Non-Beneficiaries					
ER	2389	Unknown	Unknown	$278	$664,142
UCC	304	Unknown	Unknown	$160	$48,640
Beneficiaries					
ER	18,123	Unknown	Unknown	$278	$352,774
UCC	19,517	Unknown	Unknown	$160	$218,590
FY02 Billable			Unknown		$1,284,046

Attention on the ED is now intensifying as un-reimbursed care is rapidly increasing along with progressively tighter hospital budgets. The ED is being forced to seek out methods to control expenditures, improve patient flow, improve documentation, and increase their coding compliance and subsequent billing.

Statement of the Problem

Brooke Army Medical Center Emergency Department is rapidly increasing its role as a major cost center for the hospital. The mission they provide is vital to the beneficiary population, the City of San Antonio, Trauma Region P, and the sustainment of the

GME/AIT programs. In order to maintain the level of care provided to their population, support the required programs, and reduce the impact on the core BAMC budget, the ED must become more efficient and fiscally responsible in their coding and billing. What are the support elements, in personnel, space, and equipment, needed to make the ED more efficient in the realm of data entry and documentation? What can be done to increase coding and billing efficiency in the ED? What quantity of billable charges can the ED recapture through coding compliance?

Literature Review

Health Care Overview

The National Coalition on Health Care (NCHC) reported health care spending in 2001 would exceed $1.54 trillion. "That is four times what we spent on health care in 1980 and is projected to exceed 2.3 trillion by 2009" (National Coalition on Health Care, 2000, p. 1). This increase is indicative of the fact that health care inflation is projected to rise at eight percent annually from 2000 to 2004 while general inflation is predicted to rise at only three percent annually (National Coalition on Health Care). Simultaneously health care has quickly grown to consume over 13 percent of the Gross Domestic Product in 2001 up form 8.9 percent in 1980 (CMS, 2002).

With this rapid rise in health care costs have also come significant shifts in the delivery and reimbursement of health care. From the period 1965 to 1983, reimbursement for care was based on reasonable costs of the institution providing the services. The majority of care during this period was delivered

through inpatient services. Then in 1983 in an effort to contain costs, Medicare implemented the 1983 Prospective Payment System (PPS). PPS revamped the way the way Medicare reimbursed hospitals for the care provided. Instead of paying for services provided during an episode, Medicare would now only reimburse a set amount for services rendered to patients within similar diagnosis related groups (DRGs) (Schultz & Young, 2001). This effectively revolutionized the way health care was reimbursed by government agencies and their civilian counterparts by changing it from a retrospective to prospective system payment. Along with the changes in reimbursement came a major shift from inpatient to outpatient care throughout the entire United States Health Service System (Love & Lehning, unpublished). This shift in reimbursement practices required major adjustments throughout the health care industry.

The next step the Federal Government took in their attempt to control health care costs was directed at outpatient visits. The passage of the 1997 Balance Budget Act set in motion the implementation of the Ambulatory Payment Classification (APC); the outpatient replica of DRGs. This new system is known as the Outpatient Prospective Payment System. Effective 1 August 2000 Medicare began phasing in the system to pay for hospital outpatient services based on APC groupings (Medtronic, 2001). Civilian agencies quickly adapted the same standard. As mentioned earlier the NDAA of 2000 authorizes the DoD to now also follow these guidelines and bill accordingly.

As health care costs at all levels continue to grow there

will continue to be increasing pressure on health care providers to reduce costs while maintaining or increasing the level at which care is provided. The introduction of DRGs and now APCs are two of many regulations forcing hospitals to become more efficient with their resources while operating in compliance of the new regulations. The dual effect of rising costs and reduced reimbursement is a vice that health care providers and administrators must embrace and learn to work within.

Coding

Medical Coding translates documentation into a billable form that is universally recognizable throughout the health care field. Coding is the required mechanism to obtain reimbursement for any medical facility that deals with the state or federal government or private insurance. Without it, healthcare communications would be virtually impossible to coordinate. "In fact, medical coding is the only form of communications allowed for filing health care claims" (Vidal, 2002).

The coding of medical information has been around for hundreds of years as the medical field looked for ways to standardize classification and terminology. Widespread coding or classification was originally used to classify causes of death in Europe in the late 19th Century. This classification became the International Classification of Diseases (ICD) and is still the standard worldwide. Originally constructed to gather data for statistical analysis, the use of the ICD has grown to cover the full scope of medical indexing (Centers for Disease Control, 1975). The World Health Organization updates and approves the

ICD approximately every ten years. Today ICD-9CM, 9th edition with clinical modification, is the standard in the United States with ICD-10 already being used in some European countries (American Medical Association, 2002).

In addition to the ICD codes other systems have been developed over time to meet requirements. In 1966 the American Medical Association (AMA) developed and released the first edition of the Current Procedural Codes (CPT). These were developed to simplify the reporting procedures or services rendered by health care providers. They cover six areas: laboratory, radiology, anesthesiology, medicine, pathology and evaluation & management (E&M). Then in 1983 the Healthcare Common Procedural Coding System (HCPCS) was developed. This system oversees the CPT codes plus added a mechanism to standardize the coding of medical supplies. HCPCS allowed, for the first time, a standard way of billing for services and supplies (Medicode, 2001).

With the development of multiple codes and progressively more rigorous reimbursement procedures came the necessity to have trained and dedicated individuals doing the coding. Coding as a profession did not arise until the mid 20th Century. With the explosion of medical technology and the mounting requirements by government for accurate medical data, the necessity for a dedicated asset to translate and input data became apparent. These changes, along with the increased required documentation for reimbursement has increased the role of coders over time. The single action that gave rise to the

demand for professional coders was the passage of the Medicare Catastrophic Coverage Act of 1998. It required all physicians to submit billing using diagnosis codes for all reimbursement under Medicare. ICD-9-CM was designated as the standard coding system (American Medical Association, 2002). As other agencies followed suit and with the implementation and requirement to code and bill using APCs, the role of the medical coder has finally gained legitimacy. The profession of coding along with compliance became the lynchpin to obtain reimbursement.

Current Situation

Despite this increasing requirement for skilled coders, there are no prerequisites to fill a coder position. Actually, many individuals coding today have no formal training, only what they learned on the job. Although there are national certifications for coders, they are not standardized. The American Academy of Procedural Coders offers a Certified Professional Coder certification after two years work experience and an exam (American Academy of Procedural Coders, 2002) while the American Health Information Management Association requires no experience before taking the exam to become a Certified Coding Specialist (American Health Information Management Association, 2002). These are just two of multiple certifications available. With the growing demand for coders and no unified body it is unlikely a standardized national certification will be established soon.

Although a national standard or requirement for certification may not be realized, the demand for coders will continue to allow uncertified coders a place in the workforce. With all the

advances in medical research, new technologies and the recent introduction of outpatient itemized billing (OIB) the requirements on medical coders are immense. Simultaneously the demand for coders on the business side of health care is also increasing to meet the continually changing coding and reimbursement standards. With the increased demand has come a tendency for businesses to hire non-certified coders to fill the gap. In a recent study by the American Health Information Management Association of 100 hospitals, 31 percent of the facilities employed coders with no certification (Mulaik, 2002). Although certification does not directly correlate with quality output, it is a discriminator that shows an individual does have some formal training and a drive for excellence. Along with certification comes the requirement for continuing education to retain certification. This additional training ensures the coders are exposed to the latest changes and updates in the rapidly changing medical field.

For some facilities or practices the difficulty and hassle of hiring skilled coders or training their own has resulted in outsourcing their coding needs. The most obvious advantage of outsourcing is the ability to have skilled coders with the most current knowledge of coding always available without having to worry about hiring and training. Coding has become so technical that independent coding agencies are a very viable and growing business alternative. Some facilities only use outsourcing as a way to catch up on backlogs and for auditing certain records while others use it for all their coding and billing needs.

There are some potential drawbacks to outsourcing. The loss of record access by healthcare providers while records are being transcribed and the potential loss of security and privacy when record leaves are two (Mulaik, 2002). The advantages and drawbacks must be weighed by each facility. Regardless of whether coding is done in-house or outsourced the ability of coders to do their job efficiently and accurately is vital to the financial foundation of the entire organization.

Coding Issues

The importance of trained coders and a system to ensure their compliance with regulations cannot be understated. Although the main concern of poor coding is often the potential loss of revenue, an even greater concern is "upcoding" or designating a procedure to a higher severity code in order to bill at a higher rate (Zabel, 1997). This can occur for two reasons. One, it may be financially tempting to some, as there is a 25-30 percent increment in reimbursement for each higher level of coding. Second, many practitioners perceive a greater complexity when caring for today's more demanding better-educated patients (Adams, Norman, & Burroughs, 2002). Regardless of the reason, upcoding is illegal and fraudulent.

Fraud in health care has attracted great scrutiny by the federal government in recent years. Fraud and abuse reporting and enforcement has powerful support from Congress through the False Claims Act of 1986, the Health Insurance Portability and Accountability Act (HIPAA) of 1996, and the Balanced Budget Act of 1997. The number and intensity of investigations sharply

increased after HIPAA provided independent funding for a "health care fraud and abuse control" program (Asplin, 2002). The basis for this increased scrutiny of "upcoding" is the False Claims Act that now includes:

> "any person who engages in a pattern or practice of presenting or causing to be presented a claim for an item or service that is based on a code that the person knows or should have known will result in greater payment than... service actually provided" (Asplin, p. 276).

The investigations by the Office of the Inspector General under this auspice have been very successful in reducing fraud. They have recovered from health care providers, through fines and settlements, $490 million in 1999, $717 million in 2000, and $1.3 billion in 2001 while simultaneously reducing overall Medicare fraud (HHS 1999, 2000, 2001). These figures dictate the seriousness with which the federal government pursues fraudulent acts.

In response to the increased focus on fraud, most facilities have instituted compliance programs in an effort to prevent "upcoding" or miss coding of any type. "The most effective means to avoid a fraud and abuse investigation of healthcare claims is for health care providers to install effective, comprehensive or best practice plans that identify problematic claims" (Whitehead and Salcido, 1997, p. 56). The key areas in coding compliance deal with billing procedures, admission procedures and protocols, contracts, record retention, and medical record documentation. All of these areas must be internally audited and

reviewed to ensure no regulations or laws have been violated while ensuring documentation exists to support the coding. A thorough code compliance program will allow providers internal controls, timely identification of both problem areas and areas of opportunity, and it may preempt future governmental controls. Compliance is the basic maintenance every coding program must incorporate to prevent violations and mitigate any problems discovered (Whitehead & Salcido).

Although compliance is a very important element of any program, coding is not an exact science. After a procedure is performed and documented it is converted into CPT codes that are directly linked to levels of reimbursement. CMS sets the standard and enforces the use of appropriate coding levels and their corresponding reimbursement. The key assumption in prosecuting fraudulent billing is that assigning CPT and other codes is reliable and reproducible.

This assumption was called into question by a recent study at the Wayne State University School of Medicine Affiliated Program. The coding of identical records was reviewed using two separate methods. The first method, interagency, used four coding agencies, two in each group to code 194 and 195 ED records respectively. The second method, intra-agency, performed a coding comparison of 100 ED records by their own staff. The charts were coded into six potential coded / billable levels. The results demonstrated poor agreement among coders. The interagency audit resulted in only 15 percent of the charts having the same code assigned by all four agencies while six

percent had no agreement at all (Table 2). Of greater concern is that 29 percent of all charts coded had greater than two levels of code discrepancy.

Table 2

Level of Coding Agreement

	Interagency Level Of Agreement			
	All 4 coders agree	3 coders agree	2 coders agree	No agreement
Agreement	15%	42%	37%	6%

The intra-agency study results were not broken down but were noted to be only slightly better. They too contained a wide distribution of coding levels (Bently, Wilson, Derwin, Scodellaro, & Jackson, 2002). This study raises the question that given the complexity and vagueness in the assignment of codes to medical procedures, is there any true way to code correctly?

Although coding in some studies have shown questionable accuracy, they are still the only means by which reimbursement is obtainable in health care today. Initial training and compliance programs are important but continuing education and training along with internal reviews are the key for long term coding success. Historically coding audits and training was done in a retrospective manner by looking at charts coded by individuals prior to billing to determine their accuracy. This was found to have no impact on reimbursement or have any training benefit to the coders. A shift in philosophy has taken

place and set in motion prospective reviews in to ensure accuracy prior to billing. This "new" philosophy is a direct result of two studies noted by Hoffman and Jones (1993) in Healthcare Financial Management. The first reviewed 51,608 records from 35 hospitals. Errors were discovered in 8.2 percent of records which when corrected resulted in $1,121 per record or $4.6 million of additional reimbursement to the facilities. A second study was undertaken to determine if assessment, feedback, and training that occurred immediately after coding, but prior to billing, had a measurable and lasting effect on coder accuracy. Over a six-month period record reviews along with a formal training program were put in place at six separate hospitals. Results showed the case mix index increased while coding error decreased, resulting in a greater than 10 percent increase in reimbursement (Hoffman & Jones). The literature demonstrates that trained coders and timely audits make a difference in the financial standing of a facility.

Another issue the DoD faces is their inability to outsource coding to a third party. The multiple agency guidelines and complex regulations DoD must follow have been prohibitive to outsourcing. In addition to following CMS regulations there are additional TRICARE, Uniform Business Office (UBO), and DoD requirements that must be met by all military facilities. Because of this uniqueness and complexity, outsourcing is not viewed as a feasible option for DoD facilities at this time.

Federal Government experience with itemized billing

The VA recently shifted its manner of funding. In 1997 the VA

proposed a five-year plan to operate with a flat annual appropriations budget. The VA anticipated that by 2002 it would obtain ten percent of its funding through third-party collections and other revenue streams. The VA did not meet this goal. In fact they experienced a roughly 15 percent drop in collections the first year they went to itemized billing. They have since rebounded in collections but are still not making their projections. They estimated in September 2001 to recapture $896 million or only four percent of its medical funding. One of the five major reasons cited for short falls in the programs was a lack of trained and available medical coders (U.S. General Accounting Office, 2001). This is a problem many medical agencies face nationwide today and is an issue BAMC faces in the San Antonio area. San Antonio's primary industry is medical and related industries, which results in a very competitive market for coders.

Purpose

The primary purpose of this study is to determine the overall coding accuracy and subsequent billing recuperation within the ED of BAMC. The secondary purpose is to identify, develop, and then implement processes that will allow an increase in coding accuracy and billable charges. The null hypothesis for this study is that coding accuracy and billable charges will not increase after the process improvements. The alternate hypothesis is that a significant difference will be found in coding accuracy and billable charges before and after the interventions are implemented.

Methods and Procedures

The accuracy of coding and effectiveness of billing has multiple aspects that directly impact upon them. They can be best expressed as:

y (coding accuracy)= f(data quality) + f(skills) + f(training) + f(systems)

y (billing amounts)= f(coding accuracy) + f(Other Health information (OHI)) + f(systems)

The first step in this project will be to evaluate the human aspect involved in building a medical record and its subsequent coding. How many and what personnel enter data and contribute to the construction of a ED medical record? What Data bases are involved? Who provides quality management over data entry in each system? How do all the players interact? This information will be gathered through observing, interviewing, and participating with the ED staff and data quality personnel. Flow charts to demonstrate the departmental data input and information flow will be mapped out along with recommendations to improve these processes. Data entry personnel will play an intricate role during the evaluation process.

Simultaneously, an understanding of the present manual and automated processes and data systems will be acquired. What is their routing of medical charts through the system? What databases are used? How is the data interfaced together? What systems do the coders use to code records? This information will be gained through formal training opportunities, working closely with the liaisons from Information Management Division, and

observing ED data entry and coding personnel. These human and system aspects will be undertaken from mid October through mid November 2002 to provide the base line information for the next aspect of the case.

From mid November to the end of December, focus will be shifted to the ED coders and a study of how they currently perform their jobs, are trained, and interact with other personnel. Through personal observations a determination will be made as to what areas within their scope of control can be improved upon to increase their job performance and satisfaction. This will be based upon interviews with the coders, their supervisors, coding compliance personnel and the ED leadership in conjunction with observing how coders interact with other departments. Then a determination of what support elements out of the coder's control must be enhanced to increase their effectiveness and efficiency. This will involve researching items such as what other comparable facilities do and what industry standards dictate. Continuing education opportunities will also be researched.

The final step is an analysis of various data elements. Overall data quality in terms of completeness, legibility, clarity, and format will be studied. This information will come from various system data pulls. It will be both a quantitative and qualitative review. This will include establishing a historical baseline of coding compliance and billing performance. This will be based on the BAMC's internal coding compliance program that analyzes the coding of each department's

work. This analysis will evaluate ICD-9CM, primary and secondary CPT, E&M, and modifier coding for accuracy. Along with this will come a workload analysis determining the proper coder staffing levels for the ED. This will be based on national acceptable industry standards dealing with records per medical coder per day. A review of billable amounts generated from the ED will also be completed. This will compare FY02 billing performance to current performance by the ED. From this analysis will come recommendations on systems and personnel processes. To determine the feasibility of the requirements a cost benefit analysis will be performed to determine if the proposed monetary investments are justifiable. A Business Case Analysis using the approved MEDCOM model will be built to determine financial feasibility.

   Validity and reliability

   All data obtained from within BAMC is scrutinized for reliability and validity. Face validity is not accepted, as raw data from corporate, multi-source health information systems is known to contain error. It is the responsibility of the healthcare analysts to recognize and understand the common and special cause variability of the data through knowledge of the data input, computation, and output processes. With this, content validity is only accepted after analysts review the data, understand the variances, and then process, or clean up the errors and outliers within the data sets. In addition, multiple sources of data are used to crosscheck information. This process of ensuring validity is tested through the BAMC Quality Assurance Program where experts ensure constant measures

(chart reviews, coder audits) are continually used. This process allows the data to be treated as accurate. Reliability is gained from accessing and collating data from available DoD systems. A variety of checks and balances such as timeliness of submission and completeness of the record, are used to ensure reliability. Through working with BAMC's data analysts and subject matter experts the assurance is being made that the right variables are being measured correctly and thus valid and reliable (T. Reese, personal communications, May 2003).

Overall BAMC has instituted a data-quality (DQ) program in recent years under the direction of the Assistant Secretary of Defense in 2000. The program entails each MTF having a DQ manager and DQ committee to audit and trouble-shoot any DQ problems (Assistant Secretary of Defense, 2000). In addition the Data Quality Management Control Report requires monthly audits of all coding and billing with the requisite follow-up actions (Professional Services and Outpatient Coding Guidelines, 2002). Internal agencies, MEDCOM, and the Defense Finance and Accounting Service perform these audits routinely. All reports dictate that compliance and gathered information at BAMC is within acceptable standards. The available data at BAMC may have occasional problems with accuracy and completeness on the individual record level, but the aggregate data is generally accepted to be reliable and valid after being worked by data analyst. It is suitable for use in this research project.

Results

The basis for all coding and subsequent billing is the treatment of the patient and the accompanying documentation. How BAMC creates and documents the treatment and evaluation of a patient in the ED must be understood before any evaluation of coding can begin. The first step is to gain an understanding of the processes that create the elements of a patient record and the impacts individual actions have upon the process. The information on these systems was gathered through human interaction and observation of the staff and their procedures.

Patient Record and Data Quality

The ED is a primarily paper-based system built upon the Standard Form (SF) 558. The 558 is the repository for the majority of physician documented care and is the center of the ED patients' medical record whether they are routed through the ER or UCC. In addition to the SF form, the paper record is composed of the triage sheet, nursing note, discharge paperwork, other supporting documentation, and the EMS run sheet if applicable. These forms are both handwritten and computer generated documents. Once compiled, these items represent all patient care provided to the individual to include items such as medical history, diagnosis, treatment, tests performed, vital signs, etc. This is a living document that continually changes until the patient is either discharged or admitted. Multiple individuals at various points of contact in the ED system all contribute to the formation of this document as seen in Figure 1. The record in its entirety quickly becomes cumbersome in size

and is an accountability challenge with the multiple paper attachments from multiple individuals that form the complete patient record. In this array of paper work it is not uncommon for parts of or entire records to be lost in the system.

Triage Medic / Nurse	PT History / Demographics / Assessment / Triage
Clerk	Highlights orders when entered/ Send - receive faxes if CHCS is down
ED Nurse	Vitals / Medications / Fluids / Status
Resident	All patient care / order entry
Attending Physician	Must sign off / enter note / Diagnosis as required
Physician Assistant	Pharmacy orders / Consults / Ancillary Service requests

EMS Personnel — EMS Run sheet w/ History / Demographics / Assessment

Paper Chart

Composed of:
SF 558
Triage Note
Nursing Note
Discharge paperwork
Supporting Documentation
Ambulance Run Sheet

A + D Clerk — Admission and Discharge Forms

ED Only

UCC Only

Figure 1. Key individuals and contributions made to the ED paper record.

As the paper record is being built, simultaneously a computerized medical record in the Composite Health Care System (CHCS) is also created for every patient encounter in the ED. CHCS is the approved DoD medical information system. This maintains a record of basic demographics, reason for the visit, ancillary services ordered and performed, private insurance, consults, results, and the like. The record bases its

functionality on the ability of multiple individuals to gather, verify, input, and access information as seen in Figure 2. For example OHI is gathered by having the desk clerk instruct each patient to fill out a Department of Defense (DD) 2569 (Record of Other Health Insurance) which is the basis for all Third Party billing and collections. The clerk never reviews these for accuracy only places the form in a pile for the Patient Administration Department (PAD) clerk to later enter the data. So, if the patient does not provide accurate or complete information, the PAD clerk is only inputting inaccurate incomplete information. As with the paper record, the requirement for multiple individuals to gather and input information to create and update this database makes data quality a challenge. If individuals are not meticulous in data collection and entry then the resulting data withdrawn for analysis, workload, or coding is also placed in doubt.
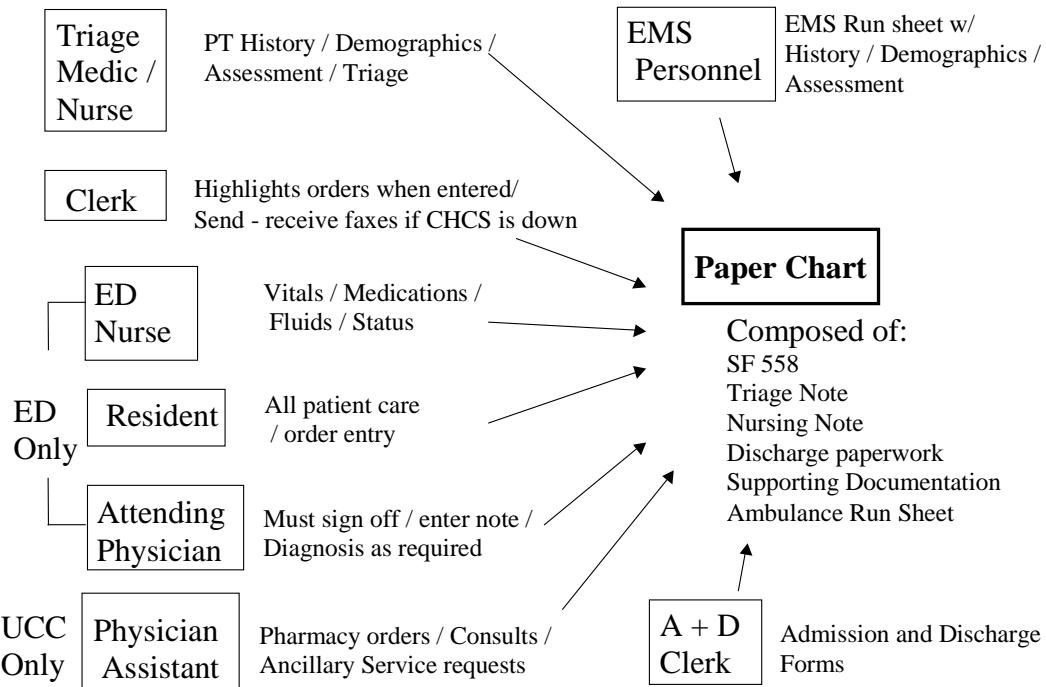
Figure 2. Key individuals and contributions made to the ED electronic record

Data quality in the patient record is a major issue within the ED. The manner in which the ED leadership ensures and oversees the quality of data inputted into two information repositories and the multiple forms by a myriad of individuals is a challenge. The level and accuracy of coding and the subsequent billing for care provided are directly correlated to the quality of documentation.

Presently the ED has a very decentralized data quality program. At the department level the primary quality assurance is the overarching Performance Improvement (PI) program that monitors such items as pain management, restraints, blood use, and conscious sedation. This program determines if the utilization of these procedures is justified under the

circumstance and if the proper documentation is being performed. This monitoring involves the random check of records or may focus on certain aspects of patient care if conditions warrant. An ED physician and a nurse run the ED process improvement along with great staff involvement. This formal PI program has yielded documentation, in the form of PI minutes, supporting that the ED personnel are documenting appropriately. Occasionally areas are discovered that require improvement and the requisite attention, actions, and documentation are then taken (V. Holbrook-Emmons, personal communications, January 2003).

A second form of data quality is the requirement of the attending physician to review, sign, and add an individual note to every patient's SF 558. The attending reviews to ensure quality care is being provided and the appropriate documentation is being made. This program works with instant feedback to the residents, both good and bad. Overall resident trends are discussed at the weekly staff meetings and these issues can then be disseminated and looked for by all staff. This is an excellent program but lacks quantifiable data. The attending's signature and accompanying note were added in October 2002 in response to itemized billing. Medical facilities can only bill for documented staff physician care with an accompanying signature. Care provided and documented by only a resident receives little to no reimbursement. The addition of the attending's signature and corresponding note has greatly increased the quality of documentation in the ED in terms of billable care.

The third data quality program deals with the nurse's note. On an annual basis, at a minimum, the chief nurse reviews a random sample of nursing notes for each individual floor nurse as part of their annual review. An assessment and feedback are then provided to the individual. This is a good system, although it is sparse in reviews and lacks any quantifiable data (V. Holbrook-Emmons, personal communications, January 2003). The last data quality program occurs outside the ED and deals with CHCS data. This area is analyzed on a totally random basis. As BAMC's internal analysts perform data pulls and find errors they are reported back to the respective ED supervisors for correction. Once again, no data or logs of the problems and corresponding corrections are kept to see improvement over time.

Information Flow

The second step of the ED Coder review process involved looking at information flow, data interfaces, and what information finally arrives at the coder's office. The ED has two distinct information flows, one for the paper record and another for the automated CHCS record. The two records are kept separate throughout the process and the information contained within them only meets when a bill is created.

The paper record is the only item that physically goes to the coder. Once the final disposition of a patient is determined, either discharge or admission, their paper record for the visit is closed out. The attending physician signs off on the SF 558 and makes the required entries. At the end of the day the ED clerk gathers all paperwork and separates out the

yellow carbon copy of the 558. The yellow carbon copy is sent to

the coders while the original 558 and all other paper work goes

to the PAD to file in the hospital's permanent patient record.

The major issue in this process is the carbon copy of the 558

which is difficult to read and without all the supporting

documentation from other sources, not all care is captured,

coded, and then billed. This paper trail is depicted in Figure

3.
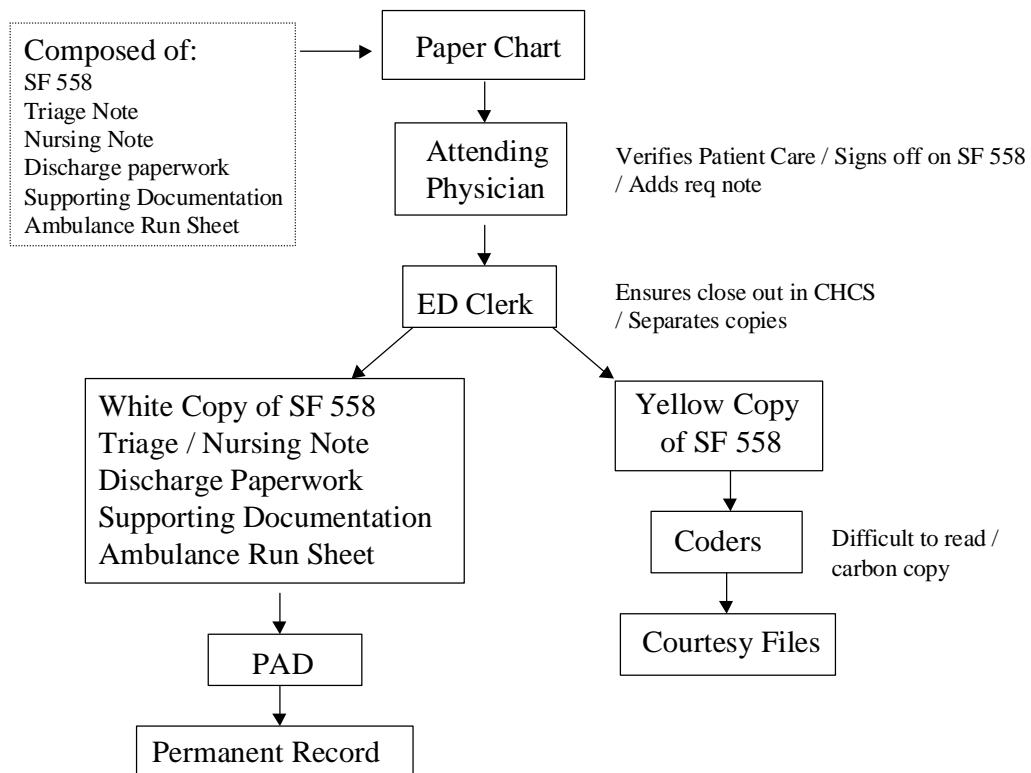
Figure 3. Flow of information and documentation in the ED.

Simultaneously, after the final disposition of a patient is

made the clerk closes out their record in CHCS. This effectively

and permanently stores all data in a repository and closes out

the visit. This record of services provided is then

automatically sent over to the Third Party Outpatient Collection System (TPOCS) for all beneficiaries and through CHCS for all MSA accounts. This information is the basis for billing all ancillary services, capturing workload, and future data analysis.

Once the paper and automated record are created and subsequently closed out, the information is ready to be coded. Everyday the coders work through SF 558s and proceed to translate physician documentation into a billable code. This is accomplished through the use of ICD9, HCPCS, and CPT codes with the appropriate modifiers and level II additions as seen in Figure 4. A coder uses historical knowledge and a myriad of reference books to accurately code a record. This includes capturing the primary, secondary and tertiary diagnosis and level of care provided, all professional services rendered, along with medical supplies used, and supporting modifiers where applicable. The coding and billing of ancillary services is an automated process through CHCS, only if the system is down are they coded manually. The real challenge in coding is to ensure you have the right complexity level of coding captured with proper supporting documentation. As mentioned in the literature review if the coder "under codes" the facility will lose money and if they "up code" the facility is over-billing, both of which are fraudulent. Choosing the complexity level is a fine line especially in the ER as the more complex the case-mix the longer and more difficult the record is to code. An average qualified coder is able to process approximately 65-75 complex

ER visits or 90-100 routine UCC visits per day.
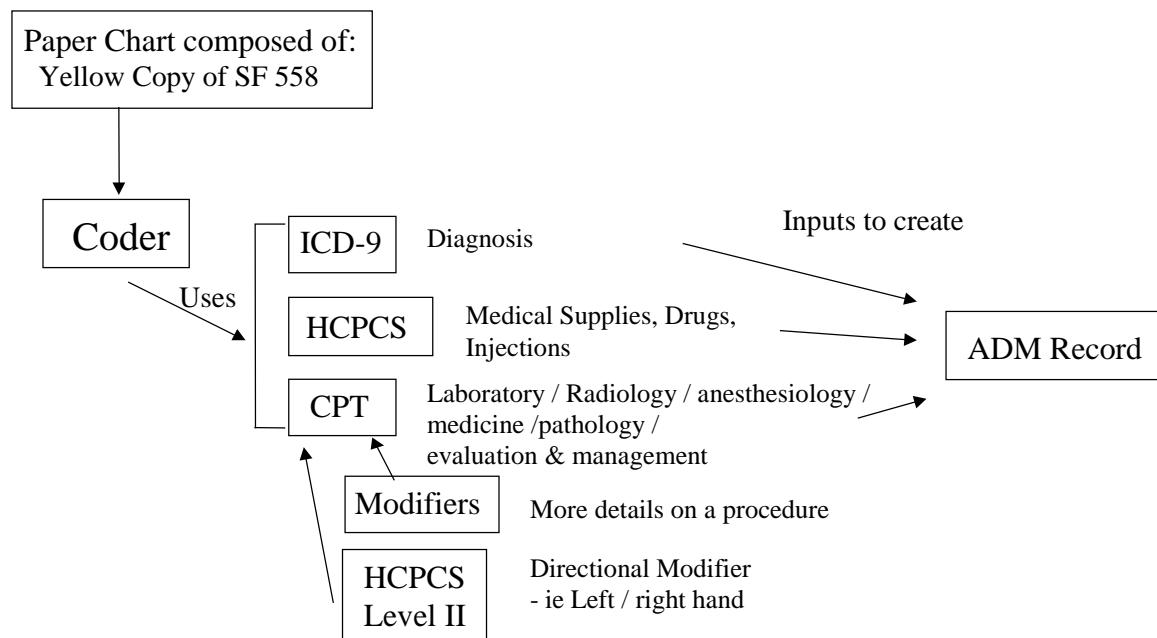
Figure 4. Process coders use to create an Automated Data Module (ADM) record.

Throughout the DoD coding is entered into the Automated Data Module (ADM) of CHCS. This module was updated from ADM 2.3 to ADM 3.0 on 1 October 2002 to allow for outpatient itemized billing and the use of coding modifiers. Along with capturing billable items the ADM module is also responsible for capturing workload at a facility through the Standard Ambulatory Data Record or SADR. Prior to OIB, workload reporting was the main concern with coding, as visits were billed at a set rate per visit, regardless of care provided and coding accuracy.

Coders

The third step in the evaluation of the ED coding was focused on the coders themselves to include reviewing their job,

training, and the work environment. Presently the ED has two Government Service level six (GS-6) coders. Their job, as previously described, is to convert medical documentation into an alphanumeric code that is universal throughout the medical industry. This requirement is laid out in the job description of a Medical Records Technician, GS-0675-06, as having to "...review and analyze medical data, code medical diagnoses and procedures, and provide assistance to the professional staff" (Position Description, Medical Records Technician, 2003, pg. 1). This duty also mandates a broad knowledge of "...procedural guides, hospital accreditation references and complex medical terminology and knowledge of hospital regulations" (Position Description, Medical Records Technician, pg. 1). The daily duty of a coder involves working through and deciphering individual medical records, researching, then inputting codes in to ADM, and then filing the record. In addition they should have open communication with the providers in order to provide feedback on ways to improve documentation and make the system as a whole perform better. Coders require a sound education base and level of specialized knowledge to perform their duties in a timely, efficiently, and accurate manner.

The level of training in the coding profession varies greatly. Demand dictates the degree of training required entering the marketplace and with demand presently outpacing supply, even novice coders can easily find jobs. Those with certification are at a premium and difficult to find. Historically BAMC has always hired coders as GS employees with

little regard to their training. This was mainly due to the standard billing rates used prior to OIB where coding accuracy was not a major focus. The only concern was documenting the workload. Today, the two ED coders are not certified, as it was not a requirement at the time of their hiring nor has it become one. Only recently has BAMC begun to hire almost exclusively contract coders from local agencies. The contract states all coders must be certified and tested prior to employment.

The majority of GS coders at BAMC are uncertified but no training program has ever been established or required to increase the level of their performance. Although other facilities have ongoing training programs that only improve the quality of coding and benefits the entire organization, BAMC has not instituted one. Systems such as the VA use a multitude of programs to educate and keep their coders current on issues. The VA sends their personnel to conferences, conducts training by video teleconference, and has biweekly departmental or hospital wide coder meetings to announce updates, discuss current trends, and regulation changes. Another educational incentive used is to cover their coder's membership in the American Academy of Procedural Coders that includes educational newsletters. A third, low cost approach is a question and answer email service for all coders within a hospital system to query each other and learn from others in an informal manner (J. Norton, personal communications, January – April 2003). The contractors BAMC uses also provide ongoing training to the coders they place. They fund their education programs through a built in fee in the

contract price.

Education is important but an oversight system must also be in place to document and ensure the benefits are being realized. In this case the system required is coding compliance. Compliance ensures BAMC, as a system, is current on all regulations and rules and ensures the accuracy of the coding to the documentation. Leading up to the onset of OIB, BAMC was not proactive in establishing a written coding compliance plan nor hiring and establishing a compliance cell. Only recently have they even begun to focus on and develop an education program to increase and maintain an acceptable compliance rate. Secondly, BAMC has no consolidated education plan. The only education system available to all government coders is a 3M online training program that takes approximately 40 hours to complete. This is mandatory training for all GS coders requiring remedial training to improve their accuracy as identified through audits. In addition the training is available to all providers to gain a better knowledge of coding. This training has not happened. In the ER, supervisors have not enforced the completion of the required 3M training by the coders due to pressure to keep up with the constant flow of new records to be coded. However, this is a poor leadership decision as the coders can either finish the training and fall behind temporarily or ignore the training and continually fall behind due to their inability to code at a rate equal to the patient flow and simultaneously code inaccurately. There are a multitude of other education programs available but it takes time and money to put them into place.

Not one program at BAMC has been set in place due to lack of central leadership and the ability to place resources against the requirement.

The physical location of the coders is another important factor to review. In the ED the coders are physically located within the department in a large room that was originally designed as storage space. Along with the housing the coders the space is also used to hold blank forms, old carbon copies of SF 558 records, a copier, and miscellaneous supplies. The space is more than adequate to house all these functions and supplies plus an additional coder but the environmental conditions are poor. The primary concern is the lack of ventilation in the room. Per facility management, over $17,000 of new air handling equipment would be required to make the area meet basic air quality requirements for an office. In addition to the air quality concerns the amount of disruptions the coders face is problematic. With all the historical SF 558s filed in their area, multiple departments within BAMC come here to photocopy records. These same individuals making copies ask questions, enter into idle chat, and basically disrupt the flow of work for the coders. This area in its current condition is not conducive to coding.

Coders in other sections at BAMC are collocated in the vicinity of the department they are supporting in order to foster teamwork and easy feedback. But unlike the ER they are segregated into private or semi-private rooms where they can talk among themselves but the outside disruptions are kept to a

minimum. Other facilities such as some VA systems have all their coders centralized in one work area. Again the emphasis is on fostering teamwork, a sharing of ideas, and a building a strong knowledge base. This is all lacking among BAMC ED Coders.

Data

The final step in the ED coding evaluation is the review of various data elements that are a direct product of the ED. The first is compliance, which is the basis for the evaluation of coding. In BAMC there is a two-person coding compliance cell that is presently responsible for auditing, providing feedback, and making on the spot corrections to coding throughout the hospital. This department is extremely under resourced as there were over 729,800 visits to BAMC in FY02 and less than 800 or 0.001 percent were audited. The goal is to have 0.5 to 1.0 percent of all records audited (Department of Health Plan Management, 2002).

The ED was last audited in August of 2002. The audit reviews how the coded ICD-9, primary and secondary CPT, E&M, and modifier match against the documentation in the medical record. The ED was split into the UCC where the Physician Assistants code and the ER where the GS-6s do the coding. The UCC coding was only 22.56 percent accurate overall where the ER was only slightly better at 48.96 percentage as seen in Table 3 (Coding Compliance Office, 2002). The goal is a 90 percent accuracy rating that will produce quality data and allow the direct billing of records. With the present compliance levels, the ability to trust what has been coded has been placed in serious

question. In an effort to avoid any potential for fraudulent

billing, an auditor and/or a billing individual compare each ADM

record coded by the ED against actual physician documentation.

At BAMC this system of checks and balances is provided by the

two-person department of coding compliance with assistance from

the billing office. This requires an individual to physically

walk to the ED, pull the yellow 558, return to their office, and

proceed to verify all information. This occurs everyday and is a

tremendous time and personnel burden on the whole system. The

result is a backlogged system with large amounts of billable

charges and resulting collections not being completed.

Table 3

Department, Individual, and Overall Coding Compliance

Coding Audit	Correct E&M Totals			%	Primary CPT Totals			%	Secondary CPT Totals			%	Primary Dx Totals			%	Secondary Dx Totals			%	Modifier Totals			%
UCC	5	of	69	7%	0	of	17	0%	0	of	7	0%	37	of	69	54%	2	of	33	6%	0	of	0	NA
ER	76	of	95	80%	25	of	77	32%	21	of	114	18%	71	of	94	76%	18	of	51	35%	0	of	0	NA

Overall Compliance	
UCC	22.56%
ER	48.96%

A second area of concern is the number of records per day a

coder completes. There are no published industry-wide standards

for the number of records that should be coded per day per type.

In the ER, the individual job performance counseling (DA Form

7223-1) has set goals for their coders at 80-90 records per day

per coder (DA Form 7223-1, 2002). This may be an unrealistic

goal. The VA set the standard at 65 - 70 records per day

(Veterans Affairs Workgroup, 2002) and the American Health

Information Management Association has quoted a minimum of 83 records per coder per day for ER or complex cases (Dunn, 2001). Even at the lowest anticipated production, the ED coders should have no difficulty maintaining pace with the record flow as the ER experiences approximately 80 visits per day or 560 per week. At 65 records per day the coders should be producing 650 ADM records per week. The excess capacity should cover for leave time and training. Unfortunately at BAMC the standard is not being met. When reviewed, the ED coders were producing from 30-50 records per day per coder. This performance has become the acceptable standard by default and has resulted in the steady building of a record backlog.

The final data analysis deals with the monetary billing and collection of payment for services rendered in the ED. In FY02, over $1,284,046 worth of billable care was provided in the UCC and ER at BAMC. Of this only $324,445 was billed out due to the low coding compliance, lack of time to verify bills against charts, and multiple other system problems that cannot be discussed in this paper due to time and space. Compounding all this was the internal decision of the UBO to not bill any third party and just focus on MSA accounts. A questionable decision since the MSA accounts are difficult to collect on, as many have no insurance. As a result only $52,694 or 16.25 percent of billed care was collected in FY02 as seen in Table 4 (Department of Health Plan Management, 2002). The rest was written off as bad debt and made up by MEDCOM. This is an extremely poor performance by the UBO to bill and collect but the root of the

entire problem lies in the hands of the ED coders and their lack of ability to produce an accurate, timely coded record.

Table 4

FY02 Billable Care and Corresponding Collections

FY02 Category	Billable Care	Actual Billed	Total Collected
MSA	$ 712,782	$ 324,445	$ 52,694
TPC	$ 571,264	$ -	$ -
Total	$ 1,284,046	$ 324,445	$ 52,694

Discussion

Methods to improve the Emergency Department's efficiency and processes of coding and the corresponding billing are multifaceted. Entire procedures and processes must be reworked, office space allocation must be rearranged, and a reorganization of personnel must occur. An incremental approach to handle these issues will allow for vast improvement in both the ED and subsequently the entire BAMC system.

Processes

The complexity of the present patient record system that uses both paper and CHCS must be reengineered. The current paper record with all its separate attachments is too cumbersome and disjointed to effectively document and then catalog care. With this, the manual entry of data into the multiple paper forms is time consuming and leaves coders trying to decipher provider penmanship. At the same time the CHCS system, although effective at capturing demographic and ancillary data, is not user-friendly and is largely avoided by providers due to its unwieldy

interface. A consolidated program needs to be implemented that will allow for a central automated system that all providers and support personnel can simultaneously easily gain access, enter information, and quickly retrieve data. CHCS II, the next generation of health information systems, is the supposed solution. Although after seeing demonstrations by the developers there is no ER user interface being built nor is there a plan to add one. Regardless the fielding of CHCS II is years away and changes must take place now in the ED.

A potential solution for this entire issue exists and is presently being developed within BAMC. The program is MedBase. MedBase is a window's based program offering the flexibility and scalability to incrementally automate the entire ED process. Built and developed in BAMC this program is presently being used in primary care and the mobilization of soldiers to document patient encounters on a small scale. MedBase provides linked pages for every requirement (Triage, SF 558, Nursing Note, etc.) with click and chose drop down windows to save time. The program can be phased in one process at a time, as the ED becomes more comfortable with the program. The advantages of MedBase include the ability to adapt the program to meet each individual provider's preferences, allow simultaneous access to all data (labs, nursing notes, 558, etc), and produce a consolidated easily read medical record. Once implemented, MedBase would allow the ED to become a paperless system with automated current health information available at the bedside of every patient allowing seamless continuity of care. Time is now being

dedicated to building the MedBase modules for the ED but further funding resources must be obligated to make the program a reality (F. Tucker, personal communications, April 2003).

A second area in the process that needs attention is the gathering of other health insurance information (OHI) on beneficiaries. Presently the ED clerk is responsible for requesting the DD 2569 is filled out upon entry to the ED and then PAD is responsible for inputting the data into CHCS. This is a hap hazard program with no quality control oversight and the opportunity of billing many individuals is missed. Presently only 7 percent of the patients presenting to the ED have documented OHI while the DoD estimate is 11 percent of DoD beneficiaries possess OHI (Department of Health Plan Management, 2002). We are failing to capture a revenue source for the facility, as this information is the basis for all TPC. Additional resources must be placed against this requirement. The addition of an ED "super" clerk to interview and gather accurate, complete private insurance information on patients among other duties would be a tremendous asset to the ED team. Individual attention placed on OHI will have a second order effect on billing for the entire facility by increasing the reliable billing information for all departments within BAMC. The potential positive effect of these clerks in conjunction with other measures is demonstrated in a business case analysis (BCA) submitted to MEDCOM in December 2002 Appendix B, "BAMC ED".

Information Flow

The flow of information and documentation in the ED must also be changed. Presently only the carbon copy of the SF 558 goes to the coders while all the original documentation is sent to PAD to be filed in the patients permanent record. This process required re-engineering and subsequently this change has occurred. Now, at the end of each day, when closeouts in CHCS have been completed, the clerk consolidates each patient's documentation into a single record. All the records are delivered the next business day to the coders. This single change in the process of information flow has dramatically improved the ability of the coders to completely code all treatment and services a patient receives in the ED as well as coding the proper level of care. The coders are much happier coding off the original, easier to read SF 558. Follow up studies should now take place to determine if a higher level of specificity or level of care is now being coded and billed as a result of this change.

Coders

Changes must be made to allow the ED coders to effectively and efficiently do their jobs. Over the past few months a "Tiger Team" consisting of all coding supervisors has been established to look at all aspects of coding and how to improve them. Among a myriad of issues being discussed is education. A BAMC wide program must be established. The issue within BAMC as a whole is that all coders work for the departments and thus there is no central leadership to mandate training and compliance. 3M

training is still available but the ED coders have only completed a small portion of the required training. This training needs to be tracked and the completion enforced. A hospital wide education plan has been discussed and the initial steps are slowly being taken. A monthly two-hour educational video teleconference (VTC) is now offered from a national coding service to all coders. This is a good start but more aggressive actions need to take place. A monthly coder meeting should be established with a period of instruction from the coding compliance cell followed by question and answers to help a sharing of ideas. A simple coder group email should also be established that allows a network of support to ask questions and share ideas with. Both these ideas are slowly taking place. Education of the coding work force will reap rewards for the entire system, from increased morale to increased compliance to increased billing and collections.

A reworking of the pay scale should be researched. A system that rewards those individuals who obtain and maintain certification and then exceed workload and compliance requirements needs to be implemented. While BAMC mandates all contract coders be certified, GS coders have been hired without certification. GS employees are presently hired at the six level with no room for advancement or the ability to improve their skills. They should be hired at a five level with the ability to advance to six upon completion of certification and satisfactory production. Once on board a combination of Quality Step Increases and incentive awards are two methods to reward those

that continually surpass the minimum standards.

The physical location of the coders and their work environment needs to be addressed. A segregated workspace that meets all environmental conditions was first priority and this was accomplished by moving the coders to a new office. This is a major improvement in working conditions but some of the same problems still exist. All the old 558s plus the copier machine followed the coders to their new smaller office. With this, the same issue of constant distractions and interruptions are still ongoing. The ED supervisors know of the problem but are slow in finding space for the records. Additionally two new contract coders, who will be discussed later, have been brought into the ED but are located in a separate office down the hall. The two new coders are both certified while the two GS ED coders are still uncertified. Supervisors have made the decision to keep the GS separate from the contract. This is a poor management decision as coders use each other as references and learn from one another but the certified coders knowledge is not being utilized to help the uncertified. A room for all four coders or dividing the knowledge base needs to occur.

Data Compliance

There are many areas of performance that need to be tracked and improved within the BAMC and ED coding and subsequent billing programs. First a robust coding compliance cell in terms of personnel and authority must be established. Presently coding compliance is done on a very random basis to only .001 percent of all records. At this rate, a department is audited only once

a year and with a very small sample size. At least three additional auditors need to be hired in order to achieve 0.5 percent of all records audited and with a semi-annual review of each department. With the staff increase must come more authority to implement standards and direct further training as required. Presently a department may view their audit, take no action and nothing is said or done. In the ED, with less than a 50 percent compliance rate the compliance cell should be able to mandate the 3M training be done and recommend further education opportunities. 3M training is taking place but at an unacceptable pace. Presently an audit of the ER coders is underway to see if any progress has been made and the results will be available within the coming weeks. With proper feedback and training the ED could reach the 90 percent compliance level.

A second area of performance to be addressed is in quantity of records processed. GS coders in the ED are counseled that 80-90 records per day are to be coded but the supervisor channels have repeatedly accepted 40-50 records per day performance. This acceptance of substandard performance has led to a backlog of records waiting coding. There is two-fold approach to this problem. First the coders in the ED should be coding all ED records to include the UCC and ER. This will free up the physician assistants in the UCC to practice medicine and stop coding at less than 25 percent accuracy. This would change the number of records to be coded to 160 visits per day or 1120 per week. Again at an average of 82 records per coder per day (average of 65 for ER records and 100 for UCC records) the ED

would require roughly three coders to maintain the workload. An additional part-time coder would be required to allow for leave, sickness, and educational absences. Two full-time and one part-time certified contract coders should be hired to augment one of the GS coders in the ED. The other GS coder should be moved to another department with close supervision and given further training.

In actuality the ED has hired two certified contract coders plus brought in a supervisor that oversees the ED, OB/GYN, and dermatology coders and is available to help code as required. The contract coders are being funded by MEDCOM through a business case analysis justifying the return on investment. Both GS coders in the ED still remain though. This additional staff is a burden on the core budget of BAMC as each contract and GS employee is approximately $53,000 and $40,000 per year respectively. Counter to this human cost is the cost saving that can be realized by increasing the accuracy and volume of coding being done in the ED and the streamlining of the billing that can be accomplished. By achieving and maintaining 90 percent compliance rate and coding all records within 72 hours of a visit the requirement for verifying by an auditor and biller will end. All ED created bills could then be immediately sent out and collected upon. The potential positive effect of coders in conjunction with the "super" clerks among other measures is demonstrated in a business case analysis submitted to MEDCOM in December 2002 in Appendix B, "BAMC ED". The hiring of the right coders and clerks along with the process reengineering results

in a positive return on investment (ROI) of over $645,000 in three years time and a steady ROI of $400,000 per year there after.

Conclusion

The purpose of this project was to determine if the BAMC ED could improve coding and billing efficiency and enhance reimbursement through process reengineering, hiring certified coders, and investing in automation systems. Through reworking all these areas, the overall performance of the ED can be greatly enhanced in a multitude of areas. First there will be an increase in data quality throughout the ED system by improving the manner in which information flows. Second, providing the required tools in terms of personnel, training, and automation will enable increased work performance of all ED personnel. Third, coding compliance will show dramatic improvement though the hiring of certified coders plus the implementation of the first two changes. Forth, the ED will show an increase in both billable visits and an increase in the total billable amounts. The overall effect of all these actions on BAMC and MEDCOM will be an increased cash flow over $400,000 per year after costs. BAMC will realize an increase in TPC and MSA, while MEDCOM will experience a corresponding reduction in MEDCOM reimbursement of MSA to make up for the civilian care BAMC provides.

Recommendations

Improving BAMC's Emergency Department efficiency and processes of coding and corresponding billing cannot be fixed with any one action. It will take a myriad of changes to effect

the process, documentation, education, layout, and personnel within the department. BAMC must commit resources to automate the entire patient / provider ED encounter in order to improve data quality and reliability. More resources must be placed against gathering third party health insurance information to increase cash flow in the ED. The information flow must be modified to ensure all documentation of patient care is provided to the coders in a timely manner. Multiple actions in the realm of coders must be implemented. First, a comprehensive training program must be established. Second, implement incentives such as promotions and compensation to reward coders for exceeding requirements. Third, a work environment that is conducive to coding needs to be implemented. The final area to be addressed in the ED is in data quality. A solid coding compliance cell needs to be constructed to ensure the BAMC's entire coding program is meeting the industry standard. Coder performance in terms of the quality and quantity of records coded needs to be established and then upheld. Billing cannot be justified if the data is not reliable. To maximize coding compliance, hire only certified coders or at a minimum those pending certification should be hired at a lower pay grade along with a requirement and timeline to complete the training. As all these changes are finalized and implemented, the ED and the rest of BAMC will reap the benefits of increased funding and a model from which to build and improve other departments within the hospital.

Appendix A

Glossary of Acronyms

ADM   Ambulatory Data Module

AIT   Advanced Individual Training

APC   Ambulatory Payment Classification

BAMC   Brooke Army Medical Center

BCA   Business Case Analysis

CHCS   Composite Health Care System

CMS   Center for Medicare & Medicaid Services

CPT   Current Procedural Codes

DoD   Department of Defense

DRG   Diagnosis Related Groups

ED   Emergency Department

E&M   Evaluation & Management

ER   Emergency Room

FY   Fiscal Year

GME   Graduate Medical Education

GS   Government Service

HCPS   Healthcare Common Procedural Coding System

ICD   International Classification of Diseases

MEDCOM   United States Army Medical Command

MEPRS   Medical Expense and Performance Reporting System

MSA   Medical Services Account

OHI   Other Health Insurance

OIB   Outpatient Itemized Billing

PAD   Patient Administration Department

PPS   Prospective Payment System

ROI   Return On Investment

SF   Standard Form

TPC   Third Party Collection

TPOCS   Third Party Outpatient Collection System

SADR   Standard Ambulatory Data Record

UCC   Urgent Care Clinic

UBO   Uniform Business Office

VA   Veteran Affairs

VTC   Video Teleconference

Appendix B

BAMC ED Business Case Analysis

Initiative Name:	*BAMC ED*

1.0 Initiative description. BAMC plans to increase the support staff in the emergency department to increase their billable care and corresponding collections from third party insurance and MSA. Simultaneously this staffing increase will result in better overall patient care. The initiative is to fund staffing of 2 medical coders and 5 multifunctional administrative clerks. The medical coders will increase the accuracy and turnaround on all records, the resulting other health insurance (OHI) revenues, and work load accountability through more accurate, efficient, and timely coding. The multipurpose clerks will allow for increased patient interaction and the correlating data collection in relation to ED users. They will have broad responsibilities to include Patient Appointment System (PAS), CARES, OHI, Admissions and Discharges (A+D), TRICARE, and assisting the medical clerks. They will increase Prime enrollment, increase third party billing information, expedite patient flow in the ED, and coordinate patient appointments with PCP for primary care.

2.0 Background - The ED treated 56,530 patients in FY02 with 29,147 (52%)in the ER and 27,383 (48%) in the UCC. The introduction of outpatient itemized billing places emphasis on coders. Historically a sizable amount of ED care has been inaccurately coded and thus not billable (FY02 - $1.2 M only $330K billed). Poor documentation and inaccurate coding are responsible for the lack of billable records. Presently the UCC PAs code their own records and the ER has 1 uncertified coder on hand. The medical clerk staffing in the ED is overburdened with data entry, retrieval, and general clerical duties. The responsibility to collect accurate third party insurance information and other pertinent data have suffered. There are no available personnel to educate and capture individuals that are TRICARE Prime eligible but not enrolled. Presently over 16% of ER patients and 20% of UCC are Prime eligible but not enrolled.

3.0 Initiative Goals & Objectives. Increase the accuracy of coding compliance to 95% and increase the billable amount to $670, 746K in the last 6 months of FY03 with incremental increases each following year. To provide hassle free and friendly environment for which interchanges between ED patients and clerks take place in order to gather more accurate and complete insurance information while enrolling the eligible population into TRICARE.

  Required 36-month investment. (Take from Performance and Financial Summary) The overall investment over 3 years is $977.5K

  Net (after investment) return on 36-month investment. (Take from Performance and Financial Summary) There will be a return of investment of $565.9K after three years. Invest $977.5K and $1,543.4K will flow back into the system.

  Location in which the initiative will be implemented. BAMC ED

  Tangible (economic) Benefit.   The tangible benefit will be increased coding compliance, increased billable amounts from the ED for care provided, increased collections from ED care, increased third party billing information, and increased TRICARE Prime enrollment. Also patient care will be improved by ensuring beneficiaries not presently enrolled become enrolled and thus are provided better continuity of care and a system savings is noted due to their health being better managed in a more cost effective setting outside the ED.   Overall Third Party Insurance information will increase allowing all of BAMC to bill for future encounters. System wide BAMC will see increased revenue flow from TPC and MSA while MEDCOM will realize decreased MSA reimbursement to BAMC.

  Intangible Benefit. *Demonstrate how your Clinical Practice Guidelines, Evidenced Based Medicine process, and Patient Safety and Near Miss guidance will benefit the community served.* Increased staffing will benefit patients by placing PAD, clinical operations, and administrative actions into one office. Beneficiaries will have better access to TRICARE, PCPs, and experience more staff interaction. Patient care will be improved by enrolling eligible beneficiaries into TRICARE Prime. They will be aligned with a PCP to better manage their care and ensure those with chronic conditions such as diabetes are treated and managed through established CPGs. Other areas will also improve such as pain management and better oversight of specialty care referrals for this recaptured population. Data quality will be improved by training, increased attention, and focus on details.

b

4.0 Metrics - *What are the metrics used to support the initiative, including Clinical Practice Guideline metrics, Evidenced Based Medicine metrics and Patient Safety and Near Miss guidance metrics?* 1) Coder compliance will be measured by > 95% compliance rate under BAMC coder audit program. 2) Total billable amount for ED Care will be measured by amount billable year with an increase in each subsequent year. 3) Increased Third Party Billing Information will be measured by a increase in third party insurance data on ED users building form the present 7% and annual increased until reaching the 11% UBO goal. 4) TRICARE Prime eligible but not enrolled will be measured by a decrease in ED users that fit this category. Decrease Space A seen in the ED from 16% ER and 20% UCC by 1% and 2 % respectively each year.

5.0   Process Design. *What are the constraints to current ways of providing these services/capabilities and how can these be reduced or eliminated? Include examples of Clinical Practice Guidelines, Evidenced Based Medicine and Patient Safety and Near Miss issues.* The environment in which ED operates is chaotic in nature and elements must be added and changed to make this a more hassle free, efficient, and safe system in which to provide quality care. Issues at hand are 1) coder compliance. This issue is due to UCC PAs coding their own records and ED coding staff lacking the proper training and being understaffed to handle the volume of records. With the implementation of itemized outpatient billing the responsibility of accurate and timely coding is paramount. PAs are not trained to code and it is not cost effective to train them to code. Proper staffing of qualified medical coders is required to handle the volume and ensure regulatory compliance. Standardized templates from the American Academy of Emergency Medicine will also increase the efficiency and quality of documentation through standardization. 2) Billable care for the ED. This arises from

the previous measure in that poor coding compliance has prevented all encounters being billed. Presently an auditor must audit and / or recode all potential billable ED visits. This is time consuming and can only be performed on
limited records due to normal auditing activities required on the remainder of the hospital. When the audits of the department meet 95% compliance then 100% of records can be billed automatically without review. 3) Third Party / Other Health Insurance information. Our current efforts in this process are for clerks to ask patients if they have filled out a DD Form 2569 which is now the BAMC 1158 in the past 12 months and if the answer is no, have them complete the form. There is no time for a clerk to go over the form and QC for missing fields. In the ER civilian patients often come in by ambulance and no one ensures the proper insurance information is gained from the patient or their family. The forms are collected and UBO enters all the usable data. Additional staffing is needed to interact with the patient to ensure they fill out the form but also that all data fields are completed. 4) TRICARE Prime eligible but not enrolled. There is no system or personnel in place to interact and encourage patients to enroll. Upwards of 8% of UCC visits are by AD/AD Family members that have not followed through on enrolling at BAMC, an additional 12% are TRICARE Prime eligible but have not e

This population needs to be educated on the advantages of enrollment and given the chance to enroll.

6.0 Link to BSC Strategy Map and BSC Measures: Specify if applicable (1) Which Command Balanced Scorecard this project supports (2) Which Strategic Objective on the BSC Strategy Map (3) Which Score Care Measure(s) This project supports Brooke Army Medical Centers BSC through objectives: C6 "Healthy Patients, Families, and communities are #1" - by enrolling patients in TRICARE and aligning them with a PCM to provide them with quality and continuity of care, IP12 "implement Best Business Practices" - align BAMC and MEDCOM resources in a financially sound manner as achieved through the BCA, IP20 "Ensure Data Quality" - increased data quality and documentation by ensuring quality trained individuals are in place, and F6 "Operate within Budget" - increase revenue streams to augment BAMC's budget and reduce MSA allocations from MEDCOM.

7.0 Implementation Plan & Benchmark Events. *Indicate key milestones, which at a minimum will include pre-implementation events (including contract negotiations, personnel recruiting/training, facility modification, and equipment acquisition), project start dates, period evaluations, contract renewals, and anticipated payback points.* Approval Date = Y. Y-45 days: job descriptions completed, Y-30: days job work orders and supply requests completed, Y+ 2: days contracts for coders submitted and contracts pending permanent hiring actions for clerks submitted, Y+ 3: days workorders for all facility modifications / additions placed and additional equipment ordered, Y+30: days contract personnel hired, Y+ 31: days begin training, Y+40: days all base modifications completed, Y+42: days project start date. Y+120: days permanent hires hired and begin training. Payback will occur at Y+ 20.5 months.

8.0 Resource Sharing: How does this project affect, or how is it affected by, Resource Sharing thresholds? It will not effect resource sharing

9.0 Other Command Interest Comments. If this is funded only as seed money only in FY03 to the sum of $162.4K BAMC requests the MSA savings in FY03 (19.6K) also be funded. These would be MEDCOM savings after implementation but request the money upfront to fund the project. In addition if only seed money is funded then request 50% of all MSA projected savings be provided to BAMC to continue to fund some of these newly created items through FY06.

Performance & Financial Summary							
		Non-Inflated					
		Net Savings & Loss Calculations ($000)					
Savings to Investment Ratio (SIR)	Net Present Value (NPV)		FY03	FY04	FY05	FY06	36-Month Program Total
		Personnel (Linked)	179.9	308.4	308.4	128.5	
		Travel (Linked)	-	-	-	-	
		Leases/Rents					
		Contracts					
		Supplies					
		Equipment (Linked)	24.6	13.9	13.8	5.8	
		Facility Mod					Outflow Total
		Housekeeping					
1.6	($955.5)	Investment Requirement	204.5	322.4	322.2	134.3	$983.4
		MCSC	85.2				
		Rev Financing					
		CHAMPUS					
		Supp Care					
	$85.2	Cost Avoidance	85	-	-	0	
		MCSC					
		Rev Financing					
		CHAMPUS					
		Supp Care					
	$0.0	Cost Savings	-	-	0	0	
		3rd Party Collect.	16.7	372.7	641.0	261.6	Inflow Total
		Other (MSA)	19.6	83.5	103.2	45.2	
2.10%	$1,485.2	Revenue	36.2	456.2	744.2	306.8	1,628.6
							36-Mo ROI
		Net Savings or Loss	(83.1)	133.8	421.9	172.6	645.3

"Direct Care Labor Cost" BCA TEMPLATE 5.0

Change in Labor Costs (O&M, MilPers)

	FY03	FY04	FY05	FY06
# Of Month's Personnel will be employed in FY	7	12	12	5
* Number of Provider FTEs	0	0	0	0
Total Provider Cost	$ -	$ -	$ -	$ -
* Number of Support Staff FTEs	7	7	7	7
Total Medical Technician Cost	$ 179,925	$ 308,443	$ 308,443	$ 128,518
Change in Labor Costs	$ 179,925	$308,443	$308,443	$ 128,518

Savings or (Cost)

Staffing Request Worksheet

Fill in the <u>Yellow Areas.</u> The calculations are automatic, but totals must be manually transferred to the summary sheet below for final roll-up and comparison..
Note: If the number of providers/technicians increase then enter positive numbers in the appropriate rows.

Healthcare **Provider** Staff & Staff Expense	Number of Personnel	* Program (composite) Rate	Specialty Pays	Total Cost per Staff Member	Provider **Support Staff** & Staff Expense	Number of Personnel	* Program (composite) Rate	Specialty Pays
Number of Medical Officers					**Number of Medical Officers**			
COL/O-6		$ 99,310		$ -			$ 99,310	
LTC/O-5		$ 99,310		$ -			$ 99,310	
MAJ/O-4		$ 99,310		$ -			$ 99,310	
CPT/0-3		$ 99,310		$ -			$ 99,310	
Number of Dental Officers					**Number of Dental Officers**			
COL/O-6		$ 99,310		$ -			$ 99,310	
LTC/O-5		$ 99,310		$ -			$ 99,310	
MAJ/O-4		$ 99,310		$ -			$ 99,310	
CPT/0-3		$ 99,310		$ -			$ 99,310	
No. of Nurse Corps Officers					**No.of Nurse Corps Officers**			
COL/O-6		$ 99,310		$ -	COL/O-6		$ 99,310	
LTC/O-5		$ 99,310		$ -	LTC/O-5		$ 99,310	
MAJ/O-4		$ 99,310		$ -	MAJ/O-4		$ 99,310	
CPT/0-3		$ 99,310		$ -	CPT/0-3		$ 99,310	
1LT/O2		$ 99,310		$ -	1LT/O2		$ 99,310	
2LT/0-1		$ 99,310		$ -	2LT/0-1		$ 99,310	
No.- Med Specialist Corps					**No.- Med Specialist Corps**			
COL/O-6		$ 99,310		$ -			$ 99,310	
LTC/O-5		$ 99,310		$ -			$ 99,310	
MAJ/O-4		$ 99,310		$ -			$ 99,310	
CPT/0-3		$ 99,310		$ -			$ 99,310	
1LT/O2		$ 99,310		$ -			$ 99,310	
2LT/0-1		$ 99,310		$ -			$ 99,310	
Number of MSCs					**Number of MSCs**			
COL/O-6		$ 99,310		$ -	COL/O-6		$ 99,310	
LTC/O-5		$ 99,310		$ -	LTC/O-5		$ 99,310	
MAJ/O-4		$ 99,310		$ -	MAJ/O-4		$ 99,310	
CPT/0-3		$ 99,310		$ -	CPT/0-3		$ 99,310	
1LT/O2		$ 99,310		$ -	1LT/O2		$ 99,310	
2LT/0-1		$ 99,310		$ -	2LT/0-1		$ 99,310	
No. of Enlisted Personnel					**No. of Enlisted Personnel**			
E-9				$ -	E-9		$ 51,367	
E-8				$ -	E-8		$ 51,367	
E-7				$ -	E-7		$ 51,367	
E-6				$ -	E-6		$ 51,367	
E-5				$ -	E-5		$ 51,367	
E-4				$ -	E-4		$ 51,367	
E-3				$ -	E-3		$ 51,367	
E-2				$ -	E-2		$ 51,367	
E-1				$ -	E-1		$ 51,367	
Total Military Staffing & Staff Expense	0			$ -	**Total Military Staffing & Staff Expense**	0		
	FY00 Gen Schedule							

Left Panel

Civilian Personnel Costs	# of Personnel	Base Pay + Benefits (Step 5 each Grade)	Specialty Pays	Total Cost per Staff Member
GS-15		$ 127,098		$ -
GS-14		$ 108,049		$ -
GS-13		$ 91,433		$ -
GS-12		$ 76,889		$ -
GS-11		$ 64,153		-
GS-10		$ 58,393		$ -
GS-09		$ 53,020		$ -
GS-08		$ 48,006		$ -
GS-07		$ 43,348		$ -
GS-06		$ 39,008		$ -
GS-05		$ 34,994		$ -
GS-04		$ 31,275		$ -
GS-03		$ 27,859		$ -
GS-02		$ 24,718		$ -
Total Civilian Staff/Expense	0			$ -

Contract Personnel Please specify <fte	# of Personnel	Base Costs	Specialty Pays	Total Cost per Staff Member
Contract Physicians				$ -
Contract Nurses				$ -
Contract Administrators				$ -
Contract Support Personnel				$ -
Total Contract Staff/Expense	0			$ -

Staffing Request

Total Staff & Staff Costs	-			$ -

Insert total # of staff and the total cost of that staff, for each alternative below as analysis is completed.

Healthcare Provider Staff / Staff Expense Summary	# of Personnel			Total Cost per Staff Member
FY03	-			#DIV/0!
FY04				
FYO5				
#REF!				

Right Panel

Civilian Personnel Costs	# of Personnel	Base Pay + Benefits	Specialty Pays
GS-15		$ 127,098	
GS-14		$ 108,049	
GS-13		$ 91,433	
GS-12		$ 76,889	
GS-11		$ 64,153	
GS-10		$ 58,393	
GS-09		$ 53,020	
GS-08		$ 48,006	
GS-07		$ 43,348	
GS-06	5	$ 39,008	
GS-05		$ 34,994	
GS-04		$ 31,275	
GS-03		$ 27,859	
GS-02		$ 24,718	
Total Civilian Staff & Expense	5		

Contract Personnel Please specify <fte	# of Personnel	Base Costs	Specialty Pays
Contract Physicians			
Contract Nurses			
Contract Administrators			
Contract Support Personnel	2	$ 56,703	
Total Contract Staff & Expense	2		

Staffing Request

Total Staff & Staff Costs	7		

Insert total # of staff and the total cost of that staff, for each alternative below as analysis is completed.

Provider Support Staff & Staff Expense Summary	# of Personnel		
FYO3	7		
FYO4			
FY05			
FY06			

* Military Salary Costs are derived from the DHP POM/BES submissions, and reflect the reimbursement rate that the DHP transfers to Army. They are essentially sunk costs.
Web Site for current General Schedule pay rates are located at: http://www.dfas.mil/money/civpay
Note that civilian GS pay rates represent pure General Schedule pay rates and do not included any locality pay. Benefits for all GS employees estimated at 25%.

Instructions for performing labor cost analysis

Labor costs include personnel salaries: MILPERS, civilian pay, contracted personnel, etc… You would consider costs/savings as either increases or decreases in labor costs compared to what already exists with each alternative (look for the change in costs associated with each alternative). Note that the pay scales in cells B18:M88 need to be separately calculated for each alternative listed in cells B94:B100 & H94:H100 with results manually entered into the appropriate "# of Personnel" and "Total Cost per Staff" summaries for both "Provider" and "Support Staff" categories located in cells C94:C100, F94:F100, H94:H100, and M94:M100. These numbers will automatically link to the summary table at the top of this Worksheet.

"Metrics & Measures"   BCA TEMPLATE 5.0

Metrics - Performance Drivers (Metrics & Measures)
Baseline and Performance Measures

Indicate all metrics that will validate whether or not an initiative is meeting it's performance target or objective.

Performance Targets (Objectives)	Performance Metrics (Broad)	Cause & Effect Relationship
Coder Compliance	>95% compliance of coded records	95% compliance enables 100% billing of records
Total billable amount for ED care	$670,747 billable in last 7 months of FY03 with annual increases in FY04 and FY05.	Coding compliance will allow for more billing and more collections of ED care provided
Increased third party billing information	% of beneficiaries with documented third party insurance. Increase from 7% to 11% over 3 years	More accurate third party insurance information will allow greater billable visits
TRICARE Prime eligible/not enrolled using ED	Decrease Space A seen in the ED from 16% ER and 20% UCC by 1% and 2 % respectively each year.	Increased enrollment will allow beneficiaries more appropriate care in the FMS

Note: Metrics are the broad performance drivers that link the results or end-products of the initiative to the objectives of the initiative. Measures are the specific indicators of performance which indicate whether the initiative is actually meeting its performance targets.

(1) Indicate the specific measures that will allow you to track the performance trends of your initiative against objective performance targets. (2) Establish your historical performance/cost profile using the workload for these specific measures for the most recent 12-month period. This information will be the baseline in which your initiative will be measured against and will also serve to document demand over at least the most recent 12-month period. In some cases a 24-month or 36 month performance trend may be useful. *Note: CHAMPUS recapture initiatives will require workload performance at the CPT, DRG, and/or ICD-9 level of detail.*

Time frame for performance data (month & year)	From:	3-Mar	To:	5-Dec

State the data source for your performance and cost data, including date of report:	➔	CHCS

Change in Capital Costs (Fiscal Analysis)	FY 03	FY04	FY 05	FY 06
Fill in the yellow areas, the calculations are automatic.				
New Patient Care Equip (Non-disposable)	($14,070.75)	($13,925.47)	($13,780.08)	($5,759)
Exam Tables				
Lights				
Scopes				
Adjustable Stools				
Dopplers				
Adjustable Chairs				
Diagnostic tables	$5,863			
Patient Assessment forms	$8,208	$13,925	$13,780	$5,759
Specialty Equip	$0	$0	$0	$0
Computer Equip	($3,000)	$0	$0	$0
New Computers	$2,000			
Software				
Telemedicine Hookups				
LAN Hookups	$1,000			
CHCS Terminals				
Non-Clinical Equip	($7,500)	$0	$0	$0
Desks	$7,500			
Curtains				
Phones				
Chairs				
Facility	$0	$0	$0	$0
Backlogged/Urgent RPM				
Renovation/Site Prep Costs				
Leased Space				
Capital Investment Totals	($24,571)	($13,925)	($13,780)	($5,759)

ED Revenue Forecast

FY02 Data

Category	Patients	MEPRS Cost / visit	Est % with OHI	Billable	Sub totals	
Civilians						
ER	2,389	$ 278		$ 664,142		
UCC	304	$ 160		$ 48,640	$ 712,782	55.5%
Beneficiaries	under 65 and non-AD					
ER	18,123	$ 278	7%	352,673.58		
UCC	19,517	$ 160	7%	218,590.40	$ 571,264	44.5%
		FY02 Total Billable		$ 1,284,046		
		FY02 Billable by month		107,003.83		

FY03 Forecast

Category	Patients	MEPRS Cost / visit	Est % with OHI	Billable	Sub totals	
Civilians						
ER	2,444	280.78		$ 686,349		
UCC	296	161.60		$ 47,763	$ 734,112	53.6%
Beneficiaries	under 65 and non-AD					
ER	18,430	$ 281	8%	413,985.83		
UCC	17,077	$ 162	8%	220,772.99	$ 634,759	46.4%
		FY03 Total Billable		$ 1,368,871		
		FY03 Billable by month		114,072.57		

FY04 Forecast

Non Bene	Patients	MEPRS Cost / visit	Est % with OHI	Billable	Sub totals	
Civilians						
ER	2,505	284		$ 710,294		
UCC	283	163		$ 46,244	$ 756,538	47.7%
Beneficiaries	under 65 and non-AD					
ER	18,738	$ 284	10%	531,399.42		
UCC	18,190	$ 163	10%	296,890.26	$ 828,290	52.3%
		FY04 Total Billable		$ 1,584,827		
		FY04 Billable by month		132,068.95		

FY05 Forecast

Category	Patients	MEPRS Cost / visit	Est % with OHI	Billable	Sub totals	
Civilians						
ER	2,565	$ 286		734,649.08		
UCC	271	$ 165		44,689.77	$ 779,339	46.0%
Beneficiaries	under 65 and non-AD					
ER	19,047	$ 286	11%	600,091.54		
UCC	17,405	$ 165	11%	315,602.39	$ 915,694	54.0%
		FY05 Total Billable		$ 1,695,033		
		FY05 Billable by month		141,252.73		

FY06 Forecast (first 5 months)

Category	Patients	MEPRS Cost / visit	Est % with OHI	Billable	Sub totals	
Civilians						
ER	1,133	289		327,808.59		
UCC	49	166		8,146.09	$ 335,955	47.3%
Beneficiaries	under 65 and non-AD					
ER	7,648	$ 289	11%	243,373.48		
UCC	7,116	$ 166	11%	130,328.90	$ 373,702	52.7%
		FY05 Total Billable		$ 709,657		
		FY05 Billable by month		59,138.09		

Billable rates   1% increases due to better coding and documentation

ED Revenue Forecast and Breakeven Analysis
with decrement cash flow in FY03 / FY04

estimating 84% of billables in 03, 90% in 04   84 / 90 is a decrment for loss due to itemized biling

FY and Category	Billable	Actual Billed	Total Collected @ 16.25%	Actual collections per Month		Planning Estimates	FY03	FY04	FY05, 06
FY02	$ 1,284,046	$ 324,445	$ 52,694	$ 4,391		MSA	17%	20%	20%
						TPC	25%	50%	70%
						CMAC rates	0%		

FY and Category	Billable	Billable per Month	Est Collections per Month	Total Collections	Investment	% Decrement Cash Flow		
FY03						84%		Billable over 6 months
MSA	616,654	51,388	8,736	39,312	(See Assumptions)			
TPC	533,197	44,433	3,703	16,662				
FY03 goal	1,149,852	95,821	12,439	55,974	204,496			670,747
FY04						90%		
MSA	680,884	56,740	11,348	136,177				
TPC	745,461	62,122	31,061	372,730				
FY04 goal	1,426,345	118,862	42,409	508,907	322,368			
FY05								
MSA	779,339	64,945	12,989	155,868				
TPC	915,694	76,308	53,415	640,986				
FY05 goal	1,695,033	141,253	66,404	796,854	322,223			
FY06 (5 months)								
MSA	335,955	67,191	13,438	67,191				
TPC	373,702	74,740	52,318	261,592				
FY06 goal	709,657	59,138	65,757	328,783	134,277			
				Total Cost	$ 983,364			

lehningpa: 4.5 months due to 2.5

Peter Lehning: 1.5 months for TP(to lag from code/b collections is 90 da TPC is credited the collected on billed. is credited to day l Also 2.5 month hiring/trng lag

Peter Lehning: Only one 4.5 of total collections adjust for only 2.5 month hiring/trng lag

Payback

Total System Payback			Per Month Increase from Present	Months for payback	Revenue	Total Cost minus Revenue	
FY03			8,048	4.5	36,214	(947,150.1)	4.5 mo due to 2.5 mo
FY04			38,018	12.0	456,213	(490,936.7)	hiring/trng lag
FY05			62,013	7.8	485,074	(5,862.8)	
FY06			61,365	0.0	0	(5,862.8)	
Total Investment Payback Period in Months				**25.3**	1 mo increase added for trainup period(exp but no rev)		

Emergency Department BCA Data

Number of OPVs

Clinic	FY00	FY01	FY02	Projected FY03	FY04	FY05	*FY06
Emer Room	29,360	28,594	29,147	29,660	30,181	30,701	12,459
Active Duty	*4,134*	*4,382*	*1,695*	*1,725*	*1,755*	*1,785*	*725*
Under 65	*18,222*	*17,405*	*20,229*	*20,585*	*20,946*	*21,308*	*8,647*
65 and Older	*7,004*	*6,807*	*7,223*	*7,350*	*7,479*	*7,608*	*3,087*
UCC	30,068	29,106	27,383	26,623	25,521	24,419	10,577
Active Duty	*4,157*	*4,347*	*1,410*	*1,371*	*1,314*	*1,257*	*510*
Under 65	*19,766*	*18,495*	*19,781*	*19,232*	*18,436*	*17,640*	*7,159*
65 and Older	*6,145*	*6,264*	*6,192*	*6,020*	*5,771*	*5,522*	*2,241*
	59,428	57,700	56,530	56,283	55,702	55,120	23,036

Total Care Provided

Patient Category	FY00	FY01	FY02	Projected FY03	Projected FY04	Projected FY05	*Projected FY06
MSA	2,216	2,234	2,693	2,740	2,788	2,836	1,182
ER Under 65			*2,106*	*2,155*	*2,208*	*2,261*	*999*
ER 65 and Older			*283*	*290*	*297*	*304*	*134*
UCC Under 65			*264*	*257*	*246*	*235*	*42*
UCC 65 and Older			*40*	*39*	*37*	*36*	*6*
Bene	57,212	55,466	53,837	53,543	52,914	52,284	21,854
	59,428	57,700	56,530	56,283	55,702	55,120	23,036

Percent of Enrolled Patients Seen

Clinic	FY00	FY01	FY02	Goal FY03	Goal FY04	Goal FY05	*Goal FY06
Emer Room (All Actual Enrolled)	65.41%	67.67%	65.44%	--	--	--	--
Emer Room (with ADFM seen as SpA)	*71.32%*	*74.44%*	*73.40%*	*--*	*--*	*--*	*--*
Emer Room (All Possible Enr's)	*83.21%*	*83.62%*	*81.09%*	*74.00%*	*75.00%*	*76.00%*	*76.00%*
UCC (All Actual Enrolled)	59.97%	65.50%	67.65%	--	--	--	--
UCC (with ADFM seen as SpA)	*66.00%*	*71.69%*	*75.01%*	*--*	*--*	*--*	*--*
UCC (All Possible Enr's)	*82.01%*	*88.13%*	*87.63%*	*77.00%*	*79.00%*	*81.00%*	*81.00%*

Total Billable

Billing Category	FY00	FY01	FY02	Goal FY03	Goal FY04	Goal FY05	*Goal FY06
MSA	$558,945	$540,695	$712,782	$734,112	$756,538	$779,339	$335,955
TPC			$571,264	$634,759	$828,290	$915,694	$373,702
			$1,284,046	$1,368,871	$1,584,827	$1,695,033	$709,657

Total Billed

Billing Category	FY00	FY01	FY02	Goal FY03	Goal FY04	Goal FY05	*Goal FY06
MSA	*$324,655*	*$294,520*	$324,445	$734,112	$756,538	$779,339	$335,955
TPC (Actual Billed)		$288,835	$0	$634,759	$828,290	$915,694	$373,702
			$324,445	$1,368,871	$1,584,827	$1,695,033	$709,657

Total Collected

Billing Category	FY00	FY01	FY02	Goal FY03	Goal FY04	Goal FY05	*Goal FY06
MSA	*$89,967*	*$75,952*	$52,694	$55,058	$151,308	$155,868	$67,191
TPC (Actual Collected)	$32,270	$11,779	$0	$23,803	$414,145	$640,986	$261,592
			$52,694	$78,862	$565,452	$796,854	$328,783

Collected to Billed Ratio

Billing Category	FY00	FY01	FY02	Goal FY03	Goal FY04	Goal FY05	*Goal FY06
MSA	*27.71%*	*25.79%*	16.24%	8%	20%	20%	20%
TPC		4.08%		4%	50%	70%	70%

* = first 5 monts of FY06

	Assumptions
1	Initial Data shows 7% of all beneficiaries have third party insurance for FY02
2	UBO has mentioned the national estimate is 11% of all beneficiaries have third party insurance
3	Estimated that 20% of MSA and 70% of TPC billable charges will actually be collected best case. Based on FY02 data and UBO estimates.
4	Estimated no increase CMAC rate and thus no increase in billable charge / visit
5	Estimated using MEPRS data from 02 due to unknown cost recoup from itemized billing. MEPRS will provide a baseline.
6	Increased coding efficiency and provider education on documentation will result in a 1% increase in billable charges. 1% increase in MEPRS rates used to estimate this.
7	The mix of ER and UCC visits will remain in the same approximate ratio of FY02 in FY03, FY04, FY05 and FY06.
8	In FY03 only 4 months of collections are credited to TPC since TPC is credited to the day collected and not day billed like MSA. So it will take three months in FY03 to start seeing the revenue from TPC.
9	For % decrease spreadsheet - Billable estimates decline 16% of total billable in FY03, based on VA drop in billable amounts after going to itemized billing that 84% of what was billable in FY02 will be billable in FY03. Estimated to rise to 90% in FY04 then 100% in
10	For worst case - Estimate only 20% of MSA and 32.3% of TPC are actually collected
11	3rd order effect for BAMC and MEDCOM is the increased third party insurance information that will be in the system for billing all future visits to DoD facilities.
12	Qualified coders can code at 80-90 records per day and with a 95% accuracy rating.
13	BAMC is presently accepting new TRICARE Prime enrollees at the FMS and TMC.
14	BAMC coding compliance and training program will ensure 95% coding compliance.
15	BAMC data quality will improve in the aggregate.
16	Better workload data will be available on BAMC ED visits / personnel.

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